APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,770	11/29/2001	Akira Yamano	02860.0698	1735

22852	7590	03/23/2006		

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ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	**Applicant(s)**
Office Action Summary	09/995,770	YAMANO, AKIRA
	Examiner	**Art Unit**	
	Vu B. Hang	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on <u>29 November 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-54 and 58</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-29 and 33-37</u> is/are rejected.

7)☒ Claim(s) <u>29-32, 38-54 and 58</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 November 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Boxma (US Patent 5,721,623) in view of Stemme (US Patent 4,344,683).

Regarding **Claim 1**, Boxma discloses an apparatus for printing a medical image on a

recording medium (see Fig.1 and Col., Line 57-67), comprising: a printing section to print either

a medical image or a test pattern for evaluating a quality of a medical image, on a recording

medium, based on the image data (see Fig.1 and Col.2, Line 64-67); a printing condition setting

section to set a printing condition for printing a test pattern (see Col.4, Line 4-8 and Col.5, Line

51-52); and a printing condition displaying section to display the printing condition set by the

printing condition setting section (see Col.6, Line 6-12). Boxma fails to expressly disclose that

the printing section prints at least one of a sharpness-evaluating test pattern and a granularity-

evaluating test pattern. Stemme, however, discloses the printing of a sharpness-evaluating test

pattern along with a photographic image on a film (see Fig.1 (2), Fig.2, Col.2, Line 15-25 and

Col.3, Line 33-45).

Boxma and Stemme are combinable because they are from the same field of endeavor,

namely image calibration apparatuses. At the time of the invention, it would have been obvious

for one skilled in the art to include to the printing section a means for printing a sharpness-

evaluating test pattern. The motivation for doing so would be to provide a visual means for

evaluating the image quality of the medical image. The printing of the test pattern along with the

medical image would allow for a medical examiner to quickly evaluate the image quality of the

medical image and determine whether another print of the medical image is necessary.

Regarding **Claim 2**, Boxma further discloses an image data creating section to create a

new image data, based on the printing condition set by the printing condition setting section (see

Col.2, Line 10-22 and Col.2, Line 57-67).

Regarding **Claim 6**, Boxma discloses a density setting section to set a density of the

medical image, based on a combination of the maximum transmission density of a test pattern

and the minimum transmission density of a test pattern (see Col.2, Line 10-22 and Col.6, Line 6-

12).

Regarding **Claim 7**, Boxma further discloses an image data creating section to create a

new image data based on the density set at the density setting section (see Col.4, Line 4-8 and

Col.5, Line 51-52).

Regarding **Claim 8**, Boxma further discloses that the test pattern and the density set by

the density setting section are printed on a recording medium (see Col.5, Line 50-59 and Col.6,

Line 25-28).

Claims 3-5, 9-11 and 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Boxma (US Patent 5,721,623) in view of Stemme (US Patent 4,344,683), and in further

view of Pourjavid (US Patent 5,883,985).

Regarding **Claims 3, 9 and 33**, Boxma and Stemme disclose the apparatus for printing a

medical image as described in Claim 1 but fail to expressly disclose a storing section for storing

at least one set of image data corresponding to the test patterns to be printed. Pourjavid, however, discloses a memory device to store image data (see Fig.1 (20) and Col.1, Line 40-41).

Boxma, Stemme and Pourjavid are combinable because they are from the same field of endeavor, namely image calibration apparatuses. At the time of the invention, it would have been obvious for one skilled in the art to include a storage area that stores image data corresponding to test patterns to the apparatus of Claim 1. It is known in the art that a image processing or printing apparatuses have at least one storage area to stored processed image data to be printed on the recording medium. Since the apparatus of Claim 1 prints both the medical image data and test patterns for calibrations, it is obvious that a storage area is necessary for the apparatus.

Regarding **Claims 4 and 34**, Boxma and Stemme disclose the apparatus for printing a medical image as described in Claim 1 but fail to expressly disclose the printing of test patterns being substantially the same each other on a recording medium. It is known in the art that printing devices have the capabilities to print multiple image items on a recording medium. At the time of the invention, it would have been obvious for one skilled in the art to enable the apparatus of Claim 1 to print multiple test patterns being substantially the same each other on a recording medium. This would allow the end user to view the different test patterns and the image to make the appropriate calibrations for the purpose of obtaining the desired image quality.

Regarding **Claim 5**, Boxma, Stemme and Pourjavid disclose the apparatus for printing a medical image as described in Claims 1 and 4 but fail to expressly disclose the printing of border lines between the multiple test patterns printed on a recording medium. Since the apparatus described in Claims 1 and 4 have the capabilities to print multiple test patterns on a recording

medium, it is obvious for one skilled in the art to include border lines between the test patterns

for the purpose of generating a more presentable hard copy prints of the images, and for allowing

the end users to distinguish between the similar test patterns.

Regarding **Claims 10 and 35**, Boxma, Stemme and Pourjavid disclose the apparatus for

printing a medical image as described in Claims 1 and 9. Pourjavid further discloses that image

data stored in advanced can be selected from a memory device (see Col.1, Line39-42).

It is known in the art that an image processing or printing apparatus usually contains a

computer or a computer program that controls the selection of one or more image data that are

pre-stored in memory of the computer or printer. It is also known in the art that a computer

program or user can group data files into sets that are similar in characteristics. Therefore, it is

obvious to include a selecting section for selecting image data that are pre-stored in memory to

the apparatus of Claim 1.

Regarding **Claims 11 and 36**, Boxma further discloses an image data processing section

to generate new image data sets corresponding to the densities (see Col.6, Line 6-24).

It is known in the art that an image processor is necessary in an image processing or

printing apparatus for generating new image data based on stored information. At the time of the

invention, it would have been obvious for one skilled in the art to include an image processing

section that generates new image data sets based on density input information from a setting unit

to the apparatus of Claim 1. The purpose of doing so would be to generate new image data sets

(including test patterns) to be stored in the apparatus for later retrieval or immediate use for

further image processing or printing.

Claims 12-15 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Boxma (US Patent 5,721,623), in view of Stemme (US Patent 4,344,683), and in further of

Agano (US Patent 6,573,507 B1).

Regarding **Claim 12**, Boxma and Stemme disclose the apparatus for printing a medical

image as described in Claim 1 but fail to expreslly disclose a pixel setting section within the

apparatus to set the pixel size of one pixel included in the image data, and a interpolate

processing section within the pixel setting section to apply interpolate-processing for either

expansion or reduction of the medical image data in response to the pixel size set at the pixel

setting section. Agano, however, discloses that the desired pixel size for an image data can be set

within the apparatus (see Col.17, Line 31-32) and the interpolate-processing process for

expansion or reduction of an image data based on the pixel information (see Col.8, Line 12-54

and Col.9, Line 1-5).

Boxma, Stemme and Agano are combinable because they are from the same field of

endeavor, namely medical image processing apparatuses. At the time of the invention, it would

have been obvious for one with ordinary skill in the art to include a pixel size setting section to

the apparatus of Claim 1 for the purpose of performing interpolate-processing on the medical

image data. It is known in the art that interpolation methods performed on an image data allows

for the expansion or reduction of the image data. Therefore, it is obvious to include a pixel size

setting section to the apparatus of Claim 1 for the purpose of adding an image

expansion/reduction feature (i.e. "zoom-in/zoon-out") to the apparatus.

Regarding **Claims 13 and 37**, Boxma, Stemme and Agano disclose the apparatus for

printing medical image as described in Claims 1 and 12. Boxma further discloses an image data

creating section to create a new image data, based on the printing condition set by the printing

condition setting section (see Col.2, Line 10-22 and Col.2, Line 57-67).

It is known in the art that a typical image processing apparatus contains an image creating

section that generates a new image data based on the print condition setting, for the purpose of

generating a higher quality image. Therefore, it is obvious for one skilled in the art to include an

image data creation section to create new image data based on the pixel size set at the printing

condition setting section for the purpose of expanding or reducing the new image data, through

interpolation-processing.

Regarding **Claim 14**, Boxma, Stemme and Agano disclose the apparatus for printing

medical image as described in Claims 1 and 12. It is known in the art that the pixel size

information is necessary for the expansion or reduction of the image data through interpolation

processing. Therefore, it is obvious for one skilled in the art to include an interpolation-

processing setting section to the apparatus of Claim 1, for the purpose of generating an expanded

or reduced size version of the image data obtained initially by the apparatus.

Regarding **Claim 15**, Boxma, Stemme and Agano disclose the apparatus for printing

medical image as described in Claims 1 and 12 but fail to expressly disclose the printing of test

patterns along with information pertaining the interpolate-processing the image data.

Since the apparatus of Claims 1 and 12 also include a pixel setting section for the printing

condition setting section, it reasonable to print out he pixel size information along with the test

patterns on a recording medium for the purpose of image quality calibrations with respect to

image expansion or reduction. The printed test patterns and pixel information can allow the end

user to evaluate and determine the necessary adjustments needed to obtain the desired image

quality from the results of the interpolation processing on the image data.

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boxma (US

Patent 5,721,623) in view of Stemme (US Patent 4,344,683), and in further view of Agano (US

Patent 6,573,507 B1), and in further view of Pourjavid (US Patent 5,883,985).

Regarding **Claim 16**, Boxma, Stemme and Agano disclose the apparatus for printing

medical image as described in Claims 1 and 12 but fail to expressly disclose a storing section for

storing at least one set of image data corresponding to the test patterns to be printed. Pourjavid,

however, discloses a memory device to store image data (see Fig.1 (20) and Col.1, Line 40-41).

Boxma, Stemm, Agano and Pourjavid are combinable because they are from the same

field of endeavor, namely image calibration apparatuses. At the time of the invention, it would

have been obvious for one skilled in the art to include a storage area that stores image data

corresponding to test patterns to the apparatus of Claim 1. It is known in the art that a image

processing or printing apparatuses have at least one storage area to stored processed image data

to be printed on the recording medium. Since the apparatus of Claim 1 prints both the medical

image data and test patterns for calibrations, it is obvious that a storage area is necessary for the

apparatus.

Regarding **Claim 17**, Boxma, Stemme, Agano and Pourjavid disclose the medical image

printing apparatus as described in Claims 1 and 16. Pourjavid further discloses that image data

stored in advanced can be selected from a memory device (see Col.1, Line39-42).

It is known in the art that an image processing or printing apparatus usually contains a

computer or a computer program that controls the selection of one or more image data that are

pre-stored in memory of the computer or printer. It is also known in the art that a computer program or user can group data files into sets that are similar in characteristics. Therefore, it is obvious to include a selecting section for selecting image data that are pre-stored in memory to the apparatus described in Claims 1 and 16.

Regarding **Claim 18**, Boxma, Stemme, Agano and Pourjavid disclose the medical image printing apparatus as described in Claims 1 and 16. Boxma further discloses an image data processing section to generate new image data sets corresponding to input signals from a setting unit (see Col.6, Line 6-24).

It is known in the art that an image processor is necessary in an image processing or printing apparatus for generating new image data based on stored information. At the time of the invention, it would have been obvious for one skilled in the art to include an image processing section that generates new image data sets based on pixel size information from a setting unit to the apparatus of Claim 1. The purpose of doing so would be to generate new image data sets (including test patterns) to be stored in the apparatus for later retrieval or immediate use for further image processing or printing.

Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boxma ((US Patent 5,721,623) in view of Stemme (US Patent 4,344,683), and in further view of Ozaki (US Patent 5,896,202).

Regarding **Claim 19**, Boxma and Stemme disclose the medical image printing apparatus as described in Claim 1 but fail to expressly disclose an image direction setting section to set an image direction of the medical image printed on a recording medium. Ozaki, however, discloses setting an image direction for an image data (see Fig.5 (S506, S507) and Col.1, Line 54-56).

Boxma, Stemme and Ozaki are combinable because they are from the same field of

endeavor, namely image processing apparatuses. At the time of the invention, it would have been

obvious for one with ordinary skill in the art to include an image direction setting section to the

apparatus of Claim 1. The motivation for doing so would be to allow an image to be rotated to

the desired direction or angle for a better view.

Regarding **Claim 20**, Boxma, Stemme and Ozaki disclose the medical image printing

apparatus as described in Claims 1 and 19. Boxma further discloses an image data creating

section to create a new image data, based on the printing condition set by the printing condition

setting section (see Col.2, Line 10-22 and Col.2, Line 57-67).

It is known in the art that a typical image processing apparatus contains an image creating

section that generates a new image data based on the print condition setting, for the purpose of

generating a higher quality image. Therefore, it is obvious for one skilled in the art to include an

image data creation section to create new image data based on the image direction set at the

printing condition setting section, for the purpose of rotating the image in a desired direction for

a better view.

Regarding **Claim 21**, Boxma, Stemme and Ozaki disclose the medical image printing

apparatus as described in Claims 1 and 19 but fail to expressly disclose the printing of the test

pattern and information pertaining the image direction, set by the image-direction setting section,

on a recording medium. Since the apparatus of Claims 1 and 19 prints both the medical image

and test pattern, it is obvious to include the printing of information concerning the image

direction on a recording medium. The purpose of doing so would be to allow the user to identify

the angle or rotating position of the medical image or test pattern printed on the recording

medium.

Claim 22-24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boxma (US

Patent 5,721,623) in view of Stemme (US Patent 4,344,683), and in further view of Ozaki (US

Patent 5,896,202) and in further view of Pourjavid (US Patent 5,883,985).

Regarding **Claim 22**, Boxma, Stemme and Ozaki disclose the apparatus for printing a

medical image as described in Claims 1 and 19 but fail to expressly disclose a storing section for

storing at least one set of image data corresponding to the test patterns to be printed. Pourjavid,

however, discloses a memory device to store image data (see Fig.1 (20) and Col.1, Line 40-41).

Boxma, Stemme, Ozaki and Pourjavid are combinable because they are from the same

field of endeavor, namely image calibration apparatuses. At the time of the invention, it would

have been obvious for one skilled in the art to include a storage area that stores image data

corresponding to test patterns to the apparatus of Claim 1. It is known in the art that a image

processing or printing apparatuses have at least one storage area to stored processed image data

to be printed on the recording medium. Since the apparatus of Claim 1 prints both the medical

image data and test patterns for calibrations, it is obvious that a storage area is necessary for the

apparatus.

Regarding **Claim 23**, Boxma, Stemme, Ozaki and Pourjavid disclose the apparatus for

printing a medical image as described in Claims 1 and 22. Pourjavid further discloses that image

data stored in advanced can be selected from a memory device (see Col.1, Line39-42).

It is known in the art that an image processing or printing apparatus usually contains a

computer or a computer program that controls the selection of one or more image data that are

pre-stored in memory of the computer or printer. It is also known in the art that a computer program or user can group data files into sets that are similar in characteristics. Therefore, it is obvious to include a selecting section for selecting image data that are pre-stored in memory to the apparatus of Claim 1.

Regarding **Claim 24**, Boxma, Stemme Ozaki and Pourjavid disclose the apparatus for printing a medical image as described in Claims 1 and 22. Boxma further discloses an image data processing section to generate new image data sets corresponding to input signals from a setting unit (see Col.6, Line 6-24).

It is known in the art that an image processor is necessary in an image processing or printing apparatus for generating new image data based on stored information. At the time of the invention, it would have been obvious for one skilled in the art to include an image processing section that generates new image data sets based on image direction information from a setting unit to the apparatus of Claim 1. The purpose of doing so would be to generate new image data sets (including test patterns) to be stored in the apparatus for later retrieval or immediate use for further image processing or printing.

Claims 25-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boxma ((US Patent 5,721,623) in view of Stemme (US Patent 4,344,683), and in further view of Pourjavid (US Patent 5,883,985).

Regarding **Claim 25 and 26**, Boxma and Stemme disclose the apparatus for printing a medical image as described in Claim 1 but fail to expressly disclose a pattern-number setting section and the printing of multiple test patterns on a recording medium. Pourjavid, however, discloses a memory device to store image data (see Fig.1 (20) and Col.1, Line 40-41).

Since the memory device indicates that multiple image data sets can be stored within the

apparatus, it also suggests that multiple test patterns can be printed on a recording medium.

When multiple test patterns can be printed on a recording medium, it is likely that the printing

condition setting section would include a pattern number setting section to set the number of test

patterns to be printed. Therefore, it is obvious for one skilled in the art to include a pattern

number setting section to the apparatus of Claim 1 to print a set number of test patterns on a

recording medium for image calibration purposes.

Regarding **Claim 28**, Boxma, Stemme and Pourjavid disclose an apparatus for printing a

medical image as described in Claims 1 and 26 but fail to expressly disclose the printing of

border lines between the multiple test patterns printed on a recording medium. Since the

apparatus described in Claims 1 and 26 have the capabilities to print multiple test patterns on a

recording medium, it is obvious for one skilled in the art to include border lines between the test

patterns for the purpose of generating a more presentable hard copy prints of the images, and for

allowing the end users to distinguish between the similar test patterns.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boxma ((US

Patent 5,721,623) in view of Stemme (US Patent 4,344,683), and in further view of Pourjavid

(US Patent 5,883,985), and in further view of Agano (US Patent 6,573,507 B1).

Regarding **Claim 27**, Boxma , Stemme and Pourjavid disclose the apparatus for printing

a medical image as described in Claims 1 and 26. Boxma further discloses a density setting

section to set a density of the medical image, based on a combination of the maximum

transmission density of a test pattern and the minimum transmission density of a test pattern (see

col.2, Line 10-22 and Col.6, Line 6-12). As mentioned in Claim 12 rejection above, Agano

discloses that the desired pixel size for an image data can be set within the apparatus (see Col.17, Line 31-32) and the interpolate-processing process for expansion or reduction of an image data based on the pixel information (see Col.8, Line 12-54 and Col.9, Line 1-5).

Boxma, Stemme, Pourjavid and Agano are combinable because they are from the same field of endeavor, namely image processing apparatus. At the time of the invention, it would have been obvious for one skilled in the art to include a combination setting section to the printing condition setting section of the apparatus of Claim 1. The motivation of doing so would be to allow the end user to make the appropriate density and pixel size adjustments at the printing condition setting unit for calibration purposes to achieve the desired image quality.

Allowable Subject Matter

Claim 29 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for indication for the allowable subject matter: For example, the limitations as recited in Claim 29, wherein the sharpness-evaluating test pattern has more than four kinds of pattern elements, with special frequencies that are relatively different from each other and in which 1 to 10 periods of each spatial frequency are aligned.

Claim 51 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for indication for the allowable subject matter:

For example, the limitations as recited in Claim 51, wherein the granularity-evaluating test

pattern has 3 to 20 uniform density regions, each of which has uniform density being different

from others and includes an area of 5mm by 5mm but does not exceed an area of 200mm by

200mm.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Vu B. Hang whose telephone number is (571) 272-0582. The

examiner can normally be reached on Monday-Friday, 9:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Edward L. Coles can be reached on (571) 272-7402. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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